

R E M A R K S

Careful review and examination of the subject application are noted and appreciated.

SUPPORT FOR CLAIM AMENDMENTS

Support for the amendments to the claims can be found in the drawings as originally filed, for example in FIGS. 2A and 2B, and in the specification as originally filed, for example on page 2, line 7 through page 3, line 2, on page 12, line 14 through page 13, line 18. As such, no new matter has been introduced.

CLAIM REJECTIONS UNDER 35 U.S.C. §112

The rejection of claims 1-20 under 35 U.S.C. §112, second paragraph, as being indefinite is respectfully traversed and should be withdrawn.

Specifically, as noted by the Board on page 3 of the Decision on Appeal, the determination of whether the claims of an application satisfy the requirements of the second paragraph of §112 is:

To determine whether the claims do, in fact, set out and circumscribe a particular area with a reasonable degree of precision and particularity. It is here where the definiteness of language employed must be analyzed - not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by **one possessing the ordinary level of skill in the pertinent art**

[footnote omitted.] (see bottom of page 3 of the Decision on Appeal, citing *In re Moore*, footnote omitted by Board, emphasis added by Appellants' representative).

However, the statement in the new ground of rejection that:

Upon review of appellants' disclosure (which includes Figures 1 and 2), we cannot find a clear depiction of the plasma chamber aperture in order to assess the meaning of the word "aperture". The examiner refers to page 7 of appellants' specification, wherein the plasma chamber aperture is mentioned. [citation omitted] A detailed description of the chamber aperture is not set forth therein. Notably, Figures 1 and 2 do not provide additional clarity in this regard. As such, the claims, as presently written, do not circumscribe the boundaries of the claims with a reasonable degree of particularity (page 4, lines 1-11 of the Decision on Appeal, mailed December 20, 2005).

does not indicate either the specific portions of Appellants' specification that were actually reviewed or that the Federal Circuit case law, which states that patent documents need not include subject matter that is known in the field of the invention and is in the prior art, because patents are written for **persons experienced in the field of the invention**, was taken into account. As such, it does not appear that a complete analysis with the proper standard was applied in arriving at the new ground of rejection presented in the Decision on Appeal. Since the new ground of rejection is not a final decision (see page 6, lines 7-10 of the Decision on Appeal mailed December 20, 2005), Appellants' will perform the analysis required by the Federal Circuit.

In particular, contrary to the position taken in the new ground of rejection, one possessing the ordinary level of skill in the pertinent art would be able to reasonably ascertain the metes and bounds of the presently claimed invention based upon the present specification and knowledge available in the art. In particular, the present specification states:

Conventional plasma processing apparatuses contain a plurality of apertures (alternatively, channels, vias, ports, inlets and/or outlets) for transmitting optical and/or electrical information and/or for transferring gases and/or other materials into or out of the chamber (page 1, line 19 through page 2, line 1 of the specification).

Since conventional plasma processing apparatuses contain a plurality of apertures, it follows that one possessing the ordinary level of skill in the art of plasma processing chambers would understand the meaning of the term "aperture" in connection with plasma processing chambers. The Federal Circuit has stated:

The law is clear that **patent documents need not include subject matter that is known in the field of the invention and is in the prior art**, for patents are written for **persons experienced in the field of the invention**. See *Vivid Technologies, Inc. v. American Science and Engineering, Inc.*, 200 F.3d 795, 804, 53 USPQ2d 1289, 1295 (Fed. Cir. 1999) ("patents are written by and for skilled artisans"). To hold otherwise would require every patent document to include a technical treatise for the unskilled reader. Although an accommodation to the "common experience" of lay persons may be feasible, it is an unnecessary burden for inventors and has long been rejected as a requirement of patent disclosures. See *Atmel Corp.*, 198 F.3d at

1382, 53 USPQ2d at 1230 (Fed. Cir. 1999) ("The specification would be of enormous and unnecessary length if one had to literally reinvent and describe the wheel."); *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1556, 220 USPQ 303, 315 (Fed. Cir. 1983) ("Patents are written to enable those skilled in the art to practice the invention, not the public.") (see *S3 Inc. v. nVIDIA Corp.*, 259 F.3d 1364, 59 USPQ2d 1745, 1749-50 (Fed. Cir. 2001)).

Assuming, *arguendo*, a detailed description of the chamber aperture is not set forth in the specification (as stated in the new ground of rejection and for which Appellants' representative does not necessarily agree), it does not necessarily follow that the claims "do not circumscribe the boundaries of the claims with a reasonable degree of particularity" as stated in the new ground of rejection (see page 4, lines 1-11 of the Decision on Appeal, mailed December 20, 2005).

As indicated above, the Federal Circuit has stated that the law is clear that patent documents need not include subject matter that is known in the field of the invention and is in the prior art, for patents are written for persons experienced in the field of the invention. The specification states that conventional plasma processing apparatuses contain a plurality of apertures. Therefore, the term "aperture" is known in the field of the invention. Furthermore, no contrary evidence was presented in the new ground of rejection that one possessing the ordinary level of skill in the art of plasma processing chambers would not understand

the meaning of the term "aperture" as used in connection with plasma processing chambers. Therefore, the new ground of rejection does not appear to have taken into account what one possessing the ordinary level of skill in the art of plasma processing chambers would understand the meaning of the term "aperture" to be in light of the present specification. Therefore, the conclusion arrived at in the new ground of rejection does not appear to be correct. As such, the rejection of claims 1-20 as being indefinite does not appear to be sustainable and should be withdrawn.

Furthermore, the specification provides a number of alternative terms for apertures (i.e., words considered to be synonyms for the term apertures) that would aid one possessing the ordinary level of skill in the art of plasma processing chambers in discerning the meaning of the term "aperture", if not already known. In particular, the present specification provides as alternatives for the term "aperture" the terms channel, via, port, inlet and outlet (see page 1, lines 20-21 of the specification). One possessing the ordinary level of skill in the pertinent art would recognize the terms apertures, channels, vias, ports, inlets and outlets as referring to "holes" through a structure (e.g., an aperture **through a wall of a plasma processing chamber**, as recited in claim 1). Indeed, read in light of the present specification, one possessing the ordinary level of skill in the pertinent art would recognize the term "aperture" as having the commonly

understood meaning of "an opening, such as a hole, gap or slit (see definitions of "aperture" from the American Heritage Dictionary of the English Language, Fourth Edition, Copyright 2000, and from the Merriam-Webster Online Dictionary, attached as Exhibit A; see also definition of "via" from Laplante, Comprehensive Dictionary of Electrical Engineering, CRC press, 1999, pg 677, attached as Exhibit B).

Furthermore, FIGS. 2A and 2B of the present specification would be recognized by one possessing the ordinary level of skill in the pertinent art as illustrating an aperture (e.g., element 20) as a hole through a chamber wall. In particular, one possessing the ordinary level of skill in the art of plasma processing chambers would recognize FIGS. 2A and 2B as illustrating a cross-section (i.e., edge view) through a portion of a chamber wall and a plan view (e.g., front/back view) of the portion of the chamber wall, respectively. For example, FIG. 2B even includes a label "(chamber wall)" to identify the structure in which the aperture 20 is illustrated. The present specification further provides an actual example from which one possessing the ordinary level of skill in the field of plasma processing chambers could discern the meaning of the term aperture:

In actual practice, the present channel sleeve, fabricated from a conventional ceramic material and having the dimensions of the actual examples listed in the table above (e.g., tolerances = \pm 0.001 inch), was inserted into **the endpoint detection channels**

of the upper chambers of nine (9) conventional, commercially available plasma etching apparatuses (including Lam 9500 plasma etch systems, obtained from Lam Research Corporation, Fremont, California). . . . (see page 18, lines 10-16 of the specification, emphasis added by Appellants' representative).

A person possessing the ordinary level of skill in the pertinent art would, based upon (i) the depiction in FIGS. 2A and 2B of the aperture 20, (ii) the identification of terms such as channel, via, port, inlet and/or outlet as being alternatives for the term aperture and (iii) the actual use example of inserting a device in accordance with the presently claimed invention into an endpoint detection channel of an upper chamber of a conventional, commercially available plasma etching apparatus, understand the term "aperture" as meaning "an opening, such as a hole, gap or slit." Since, a person possessing the ordinary level of skill in the pertinent art would clearly be able to assess the meaning of the word "aperture" as used in the presently pending claims, it follows that the term "aperture" is not indefinite (see MPEP § 2173.02). Furthermore, since a person possessing the ordinary level of skill in the pertinent art would clearly be able to assess the meaning of the word "aperture" as used in the presently pending claims, the person possessing the ordinary level of skill in the pertinent art would clearly be able to reasonably ascertain the metes and bounds of the presently claimed invention. Because the person possessing the ordinary level of skill in the pertinent art

would be able to reasonably ascertain the metes and bounds of the presently claimed invention, the present claims are definite within the meaning of 35 U.S.C. §112, second paragraph. As such, the non-final new ground of rejection does not appear to be sustainable and should be withdrawn.

All other rejections have been reversed by the Board.

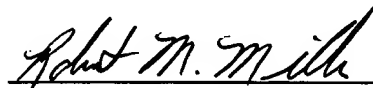
Accordingly, the present application is in condition for allowance. Early and favorable action by the Examiner is respectfully solicited.

The Examiner is respectfully invited to call the Applicants' representative should it be deemed beneficial to further advance prosecution of the application.

If any additional fees are due, please charge our office Account No. 50-0541.

Respectfully submitted,

CHRISTOPHER P. MAIORANA, P.C.



Robert M. Miller
Registration No. 42,892
24840 Harper Avenue, Suite 100
St. Clair Shores, MI 48080
(586) 498-0670

Dated: February 10, 2006

Docket No.: 0325.00324



[TheFreeDictionary](#) [Google](#) [Yahoo!](#) [eBay](#) [Amazon](#)

aperture
[Word / Article](#) [Starts with](#) [Ends with](#) [Text](#)

Welcome to Web 2.0.
Try our new fully

subscription:

Dictionary/thesaurus	Computing dictionary	Medical dictionary	Legal dictionary	Financial dictionary	Acronyms	Idioms	Columbia encyclopedia	Wikipedia encyclopedia	Hutchinson encyclopedia
--------------------------------------	--------------------------------------	------------------------------------	----------------------------------	--------------------------------------	--------------------------	------------------------	---------------------------------------	--	---

aperture Also found in: [Medical](#), [Wikipedia](#), [Hutchinson](#)

0.01 sec.

Photo Sciences - Aperture

Sponsored links

Page tools

Photo Sciences produces a wide variety of precision micro-imaged **apertures** on various surfaces for commercial and military applications. Any substrate, coating, pattern or shape.

www.photo-science.com

[Printer friendly](#)

[Cite / link](#)

[Email](#)

[Feedback](#)

Aperture Magazine - Only \$41.05

Subscribe to **Aperture** Magazine for only \$41.05 for a 1 year subscription (4 Issues). You save 31% (\$18.75). Free shipping and no sales tax.

www.mags4cheap.com

Aperture: Compare Prices

Find Bargains on **Aperture** at thousands of trusted online stores. Get tax and shipping information, merchant ratings, and professional product reviews at BizRate.com.

www.bizrate.com

ap'er-ture ⁴ ([ap'er-cher](#))
n.

1. An opening, such as a hole, gap, or slit.
2.
 - a. A usually adjustable opening in an optical instrument, such as a camera or telescope, that limits the amount of light passing through a lens or onto a mirror.
 - b. The diameter of such an opening, often expressed as an f-number.
 - c. The diameter of the objective of a telescope.

[Middle English, from Latin *apertūra*, from *apertus*, past participle of *aperire*, *to open*; see *wer-*⁴ in Indo-European roots.]

ap'er-tur'al *adj.*

The American Heritage® Dictionary of the English Language, Fourth Edition copyright ©2000 by Houghton Mifflin Company. Updated in 2003. Published by Houghton Mifflin Company. All rights reserved.

Thesaurus Legend: [Synonyms](#) [Related Words](#) [Antonyms](#)

Noun 1. aperture - a device that controls amount of light admitted

[camera](#), [photographic camera](#) - equipment for taking photographs (usually consisting of a lightproof box with a lens at one end and light-sensitive film at the other)

[regulator](#) - any of various controls or devices for regulating or controlling fluid flow, pressure, temperature, etc.

[telescope](#), [scope](#) - a magnifier of images of distant objects



2. aperture - a natural opening in something

[eye](#), [oculus](#), [optic](#) - the organ of sight

[pupil](#) - contractile aperture in the iris of the eye

[hole](#) - an opening into or through something

[micropyle](#) - minute opening in the wall of an ovule through which the pollen tube enters

[stoma](#), [stomate](#), [pore](#) - a minute epidermal pore in a leaf or stem through which gases and water vapor can pass

3. **aperture** - an man-made opening; usually small

- embouchure, mouthpiece** - the aperture of a wind instrument into which the player blows directly
- mouthpiece** - a part that goes over or into the mouth of a person; "the mouthpiece of a respirator"
- opening** - a vacant or unobstructed space that is man-made; "they left a small opening for the cat at the bottom of the door"

▼ **Mentioned in**

- | | |
|--------------------------------|---------------------------------------|
| Abbe condenser | free-reed |
| aortic orifice | gonopore |
| aperture card | halftone screen |
| Ascidioidea | imagery intelligence |
| Barker's mill | Oscule |
| Breech plug | spiracle |
| Chimney cap | stick (air transport) |
| Close vowel | Trigone |
| Epiphragm | Trompil |
| Exostome | |

[More results >>](#)

▼ **References in classic literature**

- In the trap-door itself was found a square **aperture** cut in the wood, apparently with some exceedingly sharp instrument, just behind the bolt which fastened the door on the inner side.
The Moonstone by [Collins, Wilkie](#) [View in context](#)
- The little pink sloth-creature was still blinking at me when my Ape-man reappeared at the **aperture** of the nearest of these dens, and beckoned me in.
The Island of Doctor Moreau by [Wells, H.G.](#) [View in context](#)

he had said for the third time, to his comedians, speaking machines; then as he was marching with great strides in front of the marble table, a fancy seized him to go and appear in his turn at the **aperture** of the chapel, were it only for the pleasure of making a grimace at that ungrateful populace.
Notre-Dame de Paris by [Hugo, Victor](#) [View in context](#)

[More results >>](#)

▼ **Dictionary/thesaurus browser**

- ▲
- [aperitif](#)
- [Aperitive](#)
- [Apert](#)
- [apertif](#)
- [Apertion](#)
- [Apertly](#)
- [Apertness](#)
- ▶ **aperture**
- [aperture card](#)
- [apery](#)
- [apetalous](#)
- [apetalous flower](#)
- [Apetalousness](#)
- [apex](#)
- [Apex of the earth's motion](#)
- ▼

▼ **Full browser**

- ▲
- [aperitif](#)
- [Ap  ritif](#)
- [Ap  ritif](#)
- [Aperitif for Destruction](#)
- [aperitifs](#)
- [Aperitive](#)
- [APERS](#)
- [APERSI](#)
- [Aperspectival](#)
- [APERT](#)
- [APERT](#)
- [Apert syndrome](#)
- [Apert syndrome](#)
- [Apert's syndrome](#)
- [Apert's syndrome](#)
- [Apert-Crouzon syndrome](#)
- [apertif](#)
- [Apertion](#)
- [Apertly](#)
- [Apertness](#)
- [aperto](#)
- [apertognathia](#)
- [Apertura](#)
- [apertural](#)
- ▶ **aperture**
- [Aperture \(antenna\)](#)
- [Aperture \(botany\)](#)
- [Aperture \(disambiguation\)](#)
- [Aperture \(magazine\)](#)
- [Aperture \(mollusc\)](#)
- [Aperture \(software\)](#)
- [Aperture Antenna Analysis](#)
- [Aperture Blind Subassembly](#)
- [aperture card](#)
- [aperture card](#)
- [Aperture Card Diazo](#)
- [Aperture Card Sil Negative](#)
- [Aperture Close Out](#)
- [Aperture Direct Readout \(photography\)](#)
- [Aperture Door](#)
- [Aperture grille](#)
- [Aperture grille](#)
- [Aperture Grille Pitch \(Sony CRTs\)](#)
- [Aperture Integral Equation](#)
- [Aperture Masking Interferometry](#)
- [Aperture priority](#)
- [Aperture Priority \(camera\)](#)
- [Aperture Scanning Near-Field Optical Microscopy](#)
- [Aperture stop](#)
- ▼

For webmasters: [Free content NEW!](#) | [Linking](#) | [Lookup box](#) | [Double-click lookup](#) | [Partner with us](#)

▼ [Disclaimer](#) | [Privacy policy](#) | [Feedback](#) | Copyright © 2005 [Farlex, Inc.](#)

All content on this website, including dictionary, thesaurus, literature, geography, and other reference data is for informational purposes only. This information should not be considered complete, up to date, and is not intended to be used in place of a visit, consultation, or advice of a legal, medical, or any other professional.

[Yahoo!](#) [My Yahoo!](#) [Mail](#) [Make Yahoo! your home page](#)

Search the Web

Search

YAHOO! EDUCATION

[Sign In](#)
New User? [Sign Up](#)

[Education Home](#) - [Help](#)

I need a degree in:

☐ Accounting

☐ Criminal Justice

☐ Health

☐ Business

☐ Education

☒ Technology

☒ Find The Right School

GO

Search this site:

Search

Home

K-12 School

College & Grad School

Courses & Degrees

Reference

Homework Help

Yahoo! Education > Reference > Dictionary > aperture
Definition of aperture

Reference

Dictionary

Encyclopedia

Thesaurus

World Factbook

Spanish Dictionary

Quotations

Anatomy

Conversion Calculator

Reference Factoid Quiz

What does the chorda tympani nerve help you do?

☐ Smile

☐ Taste

☐ Hear

☐ Twitch

☐ Breathe

submit my vote

view results without voting

Word of the Day

inconsequential

Definition: (adjective) of little importance.

Petersons.com

XML

MY YAHOO!

Search Dictionary:

Search

☒ Email this page to a friend

HOUGHTON MIFFLIN

< [ap  ritif](#)

[ap-er-ture](#) (  p'  r-    r) [KEY](#)

[aperture card](#) >

NOUN:

1. An opening, such as a hole, gap, or slit.

2.

a. A usually adjustable opening in an optical instrument, such as a camera or telescope, that limits the amount of light passing through a lens or onto a mirror.

b. The diameter of such an opening, often expressed as an f-number.

c. The diameter of the objective of a telescope.

ETYMOLOGY:

Middle English, from Latin apert  ra, from apertus, past participle of aper  re, to open; see wer-⁴ in Indo-European roots

OTHER FORMS:

[ap'  r-tur'al](#) (Adjective)

[Thesaurus: synonyms for aperture](#)

Visit our partner's site

Provided by Houghton Mifflin

[eReference -- Download this interactive reference software to your desktop computer](#)

e-Reference

Sponsored Links

Photo Sciences - Aperture

Photo Sciences produces a wide variety of precision micro-imaged apertures on various surfaces for commercial and military applications. Any substrate, coating, pattern or shape.

www.photo-science.com

ADVERTISEMENT

EssayEdge.com

Admissions Essay Help

"The Net's Premier Application Essay Editing Service"

- New York Times Learning Network

"One of the Best Essay Services on the Internet"

- Washington Post

EssayEdge.com

Give Yourself an Edge!

☒ Harvard-Educated Editors

☒ 250+ Sample Successful Essays

☒ Free Personal Statement Help Course

Aperture Magazine - Only \$41.05
Subscribe to **Aperture** Magazine for only \$41.05 for a 1 year subscription (4 Issues). You save 31% (\$18.75). Free shipping and no sales tax.
www.mags4cheap.com

Aperture: Compare Prices
Find Bargains on **Aperture** at thousands of trusted online stores. Get tax and shipping information, merchant ratings, and professional product reviews at BizRate.com.
www.bizrate.com

([What's this?](#))

Search Dictionary:

Search

More on Yahoo! Education

- **Online and On-Campus Degree Programs**
[MBAs](#) - [Technology Management](#) - [Education](#) - [Health](#) - [More](#)
- **College & Grad School - A Comprehensive Guide**
[College Search](#) - [Test Prep](#) - [Application Tips](#) - [Scholarship Search](#)

The American Heritage® Dictionary of the English Language, Fourth Edition.
Copyright © 2000 by Houghton Mifflin Company.
Published by the Houghton Mifflin Company. All rights reserved.
[Other Important Information](#)

Copyright © 2006 Yahoo! Inc. All Rights Reserved. [Privacy Policy](#) - [Terms of Service](#) - [Copyright/IP Policy](#) - [Ad Feedback](#)



Merriam-Webster OnLine

Merriam-Webster FOR KIDS

Encyclopædia BRITANNICA

Merriam-Webster ONLINE

Merriam-Webster COLLEGIATE®

Merriam-Webster UNABRIDGED





And let you know the minute we find it. **monster®**

HOME

PREMIUM SERVICES ▾
M-WCollegiate.com
M-WUnabridged.com
Britannica.com
Multi-User Licenses

DOWNLOADS ▾
WORD OF THE DAY ▾
WORD GAMES ▾
WORD FOR THE WISE ▾
ONLINE STORE ▾
HELP ▾

Merriam-Webster Inc.
Company information

Merriam-Webster Online Dictionary


Thesaurus

Merriam-Webster Online
☒ Dictionary
☐ Thesaurus

Go

aperture

One entry found for aperture.

Main Entry: **ap·er·ture** 
Pronunciation: 'ap-&(r) -"chur, -ch&r, -"tyur, -"tur
Function: *noun*
Etymology: Middle English, from Latin *apertura*, from *aperus*, past participle of *aperire* to open
1 : an opening or open space : **HOLE**
2 a : the opening in a photographic lens that admits the light
b : the diameter of the stop in an optical system that determines the diameter of the bundle of rays traversing the instrument
c : the diameter of the objective lens or mirror of a telescope

Browse by letter:
A B C D E F G H I J K L
M
N O P Q R S T U V W X
Y Z

Browse words next to:
aperture



aperture

Find

For **More Information on "aperture"** go to Britannica.com
Get the **Top 10 Search Results for "aperture"**

Ads by Google

Expo Depth of Field Guide
Easily compute maximum usable aperture and precise focal point
www.expoimaging.net


Pro Photo Management
Award Winning cataloging software from iView Multimedia Free Trial
www.iview-multimedia.com


Free ASP Component
Free Image Processing Components. No Purchase. Only 30 Second Survey!
FreeAspComponent.com

Babylon-Pro
Get instant results from Merriam-Webster in any desktop application in a single click
Merriam-Webster on Babylon-Pro

Handheld Collegiate
Now you can take the Eleventh Edition with you anywhere as Franklin's new Speaking Electronic Handheld!
Franklin.com/estore

Merriam-Webster
Collegiate.com
14-day Free Trial

"I was able to pay my bills and avoid bounced check fees."
Yolanda M., 



OK
HALF-PRICE LOANS

Pronunciation Symbols

[Products](#) [Premium Services](#) [Company Info](#) [Contact Us](#) [Advertising Info](#) [Privacy Policy](#)

© 2005-2006 Merriam-Webster, Incorporated

COMPREHENSIVE
DICTIONARY
OF
ELECTRICAL
ENGINEERING

EDITOR-IN-CHIEF
Phillip A. Laplante

 **CRC PRESS**  **Springer**  **IEEE PRESS**

A CRC Handbook Published in Cooperation with IEEE Press

Acquiring Editor: *Ron Powers*
Production Manager: *Suzanne Lassandro*
Project Editor: *Susan Fox*
Cover Design: *Jonathan Pennell*

Library of Congress Cataloging-in-Publication Data

Comprehensive dictionary of electrical engineering / Phillip Laplante, editor-in-chief.

p. cm.

Includes bibliographical references (p.).

ISBN 0-8493-3128-5 (alk. paper)

ISBN 3-540-64835-6 (alk. paper)

1. Electric engineering — Dictionaries. I. Laplante, Phillip A.

TK9.C575 1999

621.3'03—dc21

98-44776
CIP

Co-published by
CRC Press LLC
2000 Corporate Blvd., N.W.
Boca Raton, FL 33431, U.S.A
(Orders from the U.S.A. and Canada (only) to CRC Press LLC)

and by
Springer-Verlag GmbH & Co. KG
Tiergartenstraße 17
D-69121 Heidelberg
Germany
(Orders from outside the U.S.A. and Canada to Springer-Verlag)
ISBN 3-540-64835-6

This book contains information obtained from authentic and highly regarded sources. Reprinted material is quoted with permission, and sources are indicated. A wide variety of references are listed. Reasonable efforts have been made to publish reliable data and information, but the author and the publisher cannot assume responsibility for the validity of all materials or for the consequences of their use.

All rights reserved. This work may not be translated or copied in whole or in part without the written permission of the publisher. Use in connection with any form of information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed is forbidden.

Trademark Notice: Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation; without intent to infringe.

© 1999 by CRC Press LLC

No claim to original U.S. Government works
International Standard Book Number 3-540-64612-4
Library of Congress Card Number 98-44776
Printed in the United States of America 1 2 3 4 5 6 7 8 9 0
Printed on acid-free paper

O
a
k
C

w
a
"q
g
v
m
w

cc
di

via hole

BEST AVAILABLE COPY

relative to a local reference, usually the ground or horizon. A vertically polarized EM wave is one with its electric field vector aligned perpendicular to the local horizontal.

vertical roll in television, the apparent continuous upward or downward movement of the picture, resulting from the lack of synchronization between the transmitter and receiver.

vertical sync pulse a signal interval of the NTSC composite video signal provided for the synchronization of the vertical deflection system; the vertical sync interval has a duration of three horizontal lines and is serrated with six pulses. The vertical sync interval starts after six equalizing pulses (3 horizontal line periods) that identify the beginning of the vertical blanking interval. The vertical serration preserves the horizontal line synchronization information during the vertical sync pulse interval with the one-half horizontal line time-signal transition from the composite video blanking signal level to the sync signal level. The serrated vertical pulse duration is at the blanking level for $7 \pm 1\%$ of the horizontal line time.

vertically integrated utility a utility in which generation, transmission, and distribution divisions are all owned by a single entity.

very high-speed digital subscriber line (VDSL) a digital subscriber line (DSL) that provides very high rates (13 Mbps, 26 Mbps, and 52 Mbps) through short subscriber loops (1 to 3 kft). A VDSL may support asymmetric rates between the customer premise and the central office.

very-large-scale-integration (VLSI) (1) a technology that allows the construction and interconnection of large numbers (millions) of transistors on a single integrated circuit.

(2) an integrated circuit made of tens of thousands to hundreds of thousands of transistors.

very long instruction word (VLIW) a computer architecture that performs no dynamic analysis on the instruction stream and executes operations precisely as ordered in the instruction stream.

very small aperture terminal (VSAT) a small earth station suitable for installation at a customer's premises. A VSAT typically consists of an antenna less than 2.4 m, an outdoor unit to receive and transmit signals, and an indoor unit containing the satellite and terrestrial interface units.

vestigial sideband (1) a portion of one sideband in an amplitude modulated signal, remaining after passage through a selective filter.

(2) Amplitude modulated signal in which one sideband has been partially or largely suppressed.

(3) The small amount of energy emitted in the unused sideband in a single-sided transmitter.

VGA See video graphics adapter.

VHF very high frequency. See VHF power.

VHF power in television, the band of frequencies ranging from 30MHz to 300MHz.

VHSIC acronym for very high speed integrated circuit.

via a hole in the insulator between two metal layers on a multilayer integrated circuit that is etched and filled with a conducting material so that the two metal layers are electrically connected. Via resistance is typically less than 10 ohms.

via hole hole chemically etched from the back of a MMIC wafer and filled with metal in such a way as to allow an electrical connection between the backside of a wafer and the topside of the wafer.